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SCIENCE

FRIDAY, JULY 24, 1914

MODERN VIEWS ON THE CONSTITUTION
OF THE ATOM

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At a meeting of the Royal Society of Canada held at Montreal, May, 1914, the writer gave by request a summary of recent work and ideas on the nature of the atom. The object was to concentrate, as clearly as possible, but not exhaustively, the results and opinions scattered through many different publications. Few men have time or opportunity to collect and analyze for themselves the large output bearing on this fascinating subject.

1. It may be well to call attention to the general bearing of the situation. Biologists are divided into three camps, vitalists, mechanists, and those who sit on the boundary fence. The mechanists believe that all phenomena relating to life are attributed to the action of physical and chemical processes only. The vitalists believe that life involves something beyond and behind these. Now those who investigate natural philosophy, or physics, are endeavoring with some fair initial success, to explain all physical and chemical processes in terms of positive electrons, negative electrons, and of the effects produced by these in the ether, or space devoid of matter.

If both the mechanists are right, and also the physicists, then such phenomena as heredity and memory and intelligence, and our ideas of morality and religion, and all sorts of complicated affairs are explainable in terms of positive and negative electrons and ether. All of these speculations are really outside the domain of science, at least at present.

2. It has been remarked by Poincaré that each fresh discovery in physics adds

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